

<b>Notice of Allowability</b>	Application No.	Applicant(s)
	10/721,956	KIM, DUK-YONG
	Examiner Christian A. Hannon	Art Unit 2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 11/2/2006.
2.  The allowed claim(s) is/are 1,3-8 and 10-16.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review ( PTO-948)
3.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_.
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

## REASONS FOR ALLOWANCE

1. Claims 1, 3-8 & 10-16 are allowed over the cited prior art.
2. The following is the Examiner's statement of reasons for allowance:

Regarding independent claim 1, the claim was allowed as set forth in the previous action.

In regards to independent claim 10, Singer et al (US 6,239,744), hereinafter Singer, teaches an antenna remote control apparatus for a base station in a mobile communication system comprising, a remote controller for combining a driving voltage for a motor used to control the beam direction of an antenna, a reference signal for measuring the rotation state of the motor, and an RF signal for mobile communication and transmitting the combined signal via a feeder cable (Figure 1, Item 50; Column 3, Lines 39-62; Singer) and an antenna controller for receiving the combined signal from the remote controller via the feeder cable (Figure 1, Item 4.1; Column 5, Lines 15-16; Singer), for dividing the combined signal into the reference signal, the motor driving voltage, and the RF signal, driving the motor suing the motor driving voltage, and for outputting a variation in the reference signal depending on the rotation state of the motor to the remote controller via the feeder cable (Figure 1, Item 40; Column 3, Lines 29-31, 44-50; Singer). Singer discloses a main controller (remote controller) and a microcontroller (antenna controller) connected by a coaxial cable (feeder cable), which provides signals for a reference signal, motor driving voltage and communication RF signal through the coaxial cable. However Singer fails to teach wherein the remote

controller includes a frequency generator generating the reference signal to measure the rotation state of the motor that controls the beam direction and tilting angle of the antenna, a motor voltage generator generating the driving voltage required to drive the motor mounted to the antenna, a matcher combining the output of the frequency generator with the output voltage of the motor voltage generator and receiving the variation in the rotation state of the motor from the antenna controller, a bias T combining the output of the matcher with the RF signal and outputting the combined signal to the antenna controller via the feeder cable and a signal detector detecting the variation in the rotation state of the motor from the signal received from the matcher, converting the variation to a square wave signal, and outputting the square wave signal wherein the remote controller outputs a voltage and control signal for driving the motor and receives the control result value from the signal detector, thereby continuously controlling the motor voltage generator and the frequency generator.

In regards to claim 11, Singer teaches an antenna remote control apparatus for a base station in a mobile communication system comprising, a remote controller for combining a driving voltage for a motor used to control the beam direction of an antenna, a reference signal for measuring the rotation state of the motor, and an RF signal for mobile communication and transmitting the combined signal via a feeder cable (Figure 1, Item 50; Column 3, Lines 39-62; Singer) and an antenna controller for receiving the combined signal from the remote controller via the feeder cable (Figure 1, Item 41; Column 5, Lines 15-16; Singer), for dividing the combined signal into the reference signal, the motor driving voltage, and the RF signal, driving the motor suing

the motor driving voltage, and for outputting a variation in the reference signal depending on the rotation state of the motor to the remote controller via the feeder cable (Figure 1, Item 40; Column 3, Lines 29-31, 44-50; Singer). Singer discloses a main controller (remote controller) and a microcontroller (antenna controller) connected by a coaxial cable (feeder cable), which provides signals for a reference signal, motor driving voltage and communication RF signal through the coaxial cable. However Singer fails to teach a signal divider for receiving the output signal of the bias T via the feeder cable, dividing the received signal into the RF signal for mobile communication, the motor driving voltage signal for driving the motor, and the reference signal for a variation in the beam direction and tilting angle of the antenna, and outputting the divided signals, the motor for being driven upon receipt of the motor driving voltage from the signal divider to control the beam direction and tilting angle of the antenna and an encoder for changing a resistance value thereof according to the rotation state of the motor and outputting the reference signal changed according to the changed resistance value to the matcher.

Claims 3-8 are allowed as they depend from allowable independent claim 1.

Claims 12-16 are allowed as they depend from allowable independent claim 10.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and to avoid processing delays should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian A. Hannon whose telephone number is (571) 272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Christian A. Hannon  
November 9, 2006

 11/12/06  
QUOCCHIEN B. VUONG  
PRIMARY EXAMINER